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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,449	11/03/2003	Masakuni Kawagoe	030712-16	3463

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EXAMINER	
WONG, XAVIER S	
ART UNIT	PAPER NUMBER
2609	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/02/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/698,449	KAWAGOE ET AL.	
	Examiner	Art Unit	
	Xavier Wong	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *3rd November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 - 11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *3rd November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3rd November 2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

Information Disclosure Statement

The information disclosure statement submitted on *3rd November 2003* has been considered by the Examiner and made of record in the application file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims **1**, **2** and **4 – 8** are rejected under 35 U.S.C. 102(b) as being anticipated by **Yoneda et al** (**U.S Patent 5,726,942**).

Consider claim **1**, **Yoneda et al** clearly show and disclose an encoder (as an arbiter circuit) that comprises: a timing circuit *60* that sends variation of output signals to show a timing at which a flag data in a prefetch circuit *16* is shifted to a flag register *18* (col. *25* lines *39-46*; figs. *10-11*); prioritizing means are

accomplished by a priority sub-block encoder (priority circuit) that assigns signals as mismatch ("0" as in invalid/lower priorities) or hit ("1" as in valid/highest priority) in which only a first priority address matches even though a plurality of matching signal candidates exist as afterwards the signals will be detected by a flag data sense circuit *126* (col. *4* lines *5-13*, col. *11* lines *42-47* & col. *53* lines *42-46*; figs. *1-2*). When priority flag/hit data moves to another priority sub-block, the flag data goes through a priority encode cycle (delay) in which the contents of the flag register *18* are switched over to the second priority flag data held in the prefetch circuit after the last hit signal in the flag data in the first priority sub-block held in the flag register is reset; therefore, producing a time/delay during which no encode output can be performed (col. *22* lines *7-15*).

Consider claim **2**, and as applied to claim **1** above, **Yoneda et al** clearly show and disclose a priority flag data goes through a priority encode cycle (delay) in which the contents of the flag register *18* are switched over to the second priority flag data held in the prefetch circuit (holding means) after the last hit signal in the flag data in the first priority sub-block held in the flag register is reset; therefore, a time/delay during which no encode output can be performed – between holding and prioritizing stages (col. *22* lines *7-15*).

Consider claim **4**, and as applied to claim **1** above, **Yoneda et al** clearly show and disclose a timing circuit *60* that sends variation of output signals to show a timing at which a flag data in a prefetch circuit *16* is shifted to a flag

register *18* in which the flag data held is being encoded with a predetermined priority (col. *25* lines *39-51*; figs. *10-11*).

Consider claim **5**, and as applied to claim **1** above, **Yoneda et al** clearly show and disclose hit flag data are predetermined into first and second priorities and so on as non-first priority data are held in a prefetch register and wait (delay) until their priority comes/the last signal to be output (col. *21* lines *46-67* & col. *22* lines *1-15*; *abstract*). Therefore, this procedure implies that each output signal is prioritized and delayed.

Consider claim **6**, and as applied to claim **1** above, **Yoneda et al** clearly show and disclose when priority flag/hit ("1" – highest priority) data moves to another priority sub-block, the flag data goes through a priority encode cycle (delay) in which the contents of the flag register *18* are switched over to the second priority flag data held in the prefetch circuit after the last hit signal in the flag data in the first priority sub-block held in the flag register is reset; therefore, producing a time/delay during which no encode output can be performed (col. *22* lines *7-15*).

Consider claim **7**, and as applied to claim **1** above, **Yoneda et al** clearly show and disclose the timing control circuit, which is a flip-flop circuit as shown in *figure 23* as D-latch modules *16* and *18*, detects flag data (high/hit signals), held in the flag register *18*, applies a switch timing signal or initial value setting signal (as

a trigger signal) to the flag register *18* and feeds the flag data in the prefetch circuit *16* to the flag register (col. *21* lines *46-57*; fig. *23*). A reset signal is also linked to the flag register *18* through an AND gate *88* and OR gate *114* (col. *28* lines *29-43*; fig. *23*).

Consider claim **8**, and as applied to claim **1** above, **Yoneda et al** clearly show and disclose priority sub-block encoder – for prioritizing means – gate components AND gate *88*, OR gate *114,* D-Latches (with gate circuits inside) that hold flag signals, as well as PMOS and NMOS gates (col. *9* lines *4-5*; fig. *23*).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims **3** and **9 – 11** rejected under 35 U.S.C. 103(a) as being unpatentable over **Yoneda et al (U.S Patent 5,726,942)** in view of **Okabayashi et al (JP 1993-259900)**.

Consider claim **3**, and as applied to claim **2** above, **Yoneda et al** clearly show and disclose a priority sub-block encoder (priority circuit) that assigns signals as mismatch ("0" as in invalid/lower priorities) or hit ("1" as in valid/highest priority) in which only a first priority address matches even though a plurality of matching signal candidates exist as priority flag/hit data moves to a second/lower priority sub-block (col. *4* lines *5-13* & col. *11* lines *42-47*; figs. *1-2*). The hit signal data in the second/lower priority sub-block latch-held in the prefetch circuit is shifted to each corresponding circuit of the data latch circuit *18* and held therein;

and therefore, the transmission of signals are delayed for lower prioritized signals (col. *12* lines *60-63*).

However, **Yoneda et al** did not specifically disclose a plurality of stages of inverter circuits connected in series for the delaying means.

In a related field of endeavor, **Okabayashi et al** disclose a circuit comprising an even number of conduction resistor controlled CMOS inverters (in a plurality) connected in series (*abstract*; paragraph *0031*; fig. *1* modules *41-44* & block *2*).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to incorporate the teachings of a plurality of delay inverter circuits connected in series as taught by **Okabayashi et al**, in the circuit of **Yoneda et al**, for the purpose of creating delay during phase modulation to detect for potential deviations in output signals.

Consider claim **9**, and as applied to claim **1** above, **Yoneda et al** clearly show and disclose the delaying and prioritizing means as well as a timing control circuit with a reset signal and a signal that passes through inverter *84* into a logic AND gate *88* (AND gate takes the *product* of two inputs); obviously for enabling/disabling the delay operations (col. *28* lines *29-43*; fig. *23*).

However, **Yoneda et al** did not specifically mention the delay inverter circuits connected in series comprise PMOS transistors, resistors and NMOS transistors.

In a related field of endeavor, **Okabayashi et al** disclose a circuit employing an even number of conduction resistor controlled CMOS inverters, which comprise of PMOS and NMOS transistors, connected in series (*abstract*; paragraph *0031*; fig. *1* modules *41-44* & block *2*).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to incorporate the teachings of a delay inverter circuits connected in series comprise PMOS transistors, resistors and NMOS transistors as taught by **Okabayashi et al**, in the circuit of **Yoneda et al**, for the purpose of creating delay during phase modulation to detect for potential deviations in output signals.

Consider claim **10**, and as applied to claim **1** above, **Yoneda et al** clearly show and disclose a timing circuit *60* (acting as a delay circuit) that sends variation of output signals to show a timing at which a flag data in a prefetch circuit *16* is shifted to a flag register *18* in which the flag data held is being encoded with a predetermined priority (col. *25* lines *39-51*; figs. *10-11*).

However, **Yoneda et al** did not specifically disclose the delay circuit having an even number of stages of delay inverter circuits connected in series, the delay inverter circuits comprising PMOS transistors, resistors and NMOS transistors.

In a related field of endeavor, **Okabayashi et al** disclose a circuit employing an even number of conduction resistor controlled CMOS inverters,

which comprise of PMOS and NMOS transistors (well-known in the art), connected in series (*abstract*; paragraph *0031*; fig. *1* modules *41-44* & block *2*).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to incorporate the teachings of a delay inverter circuits connected in series comprise PMOS transistors, resistors and NMOS transistors as taught by **Okabayashi et al**, in the circuit of **Yoneda et al**, for the purpose of creating delay during phase modulation to detect for potential deviations in output signals.

Consider claim **11**, and as applied to claim **10** above, **Yoneda et al** clearly show and disclose the delaying means of the claimed invention and the timing control circuit that comprises a reset signal and a signal that passes through inverter *84* into a logic AND gate *88* (AND gate takes the *product* of two inputs) and then the product signal passes through a logic OR gate *114* with the initial value setting signal; obviously for enabling/disabling the delay operations (col. *28* lines *29-43*; fig. *23*).

However, **Yoneda et al** did not specifically disclose a plurality of delay circuits each having an even number of stages of delay inverter circuits connected in series, the delay inverter circuits comprising PMOS transistors, resistors and NMOS transistors.

In a related field of endeavor, **Okabayashi et al** disclose a circuit comprising an even number of conduction resistor controlled CMOS inverters (in

a plurality), which comprise of PMOS and NMOS transistors, connected in series (*abstract*; paragraph *0031*; fig. *1* modules *41-44* & block *2*).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to incorporate the teachings of a plurality of delay inverter circuits connected in series comprise PMOS transistors, resistors and NMOS transistors as taught by **Okabayashi et al**, in the circuit of **Yoneda et al**, for the purpose of creating delay during phase modulation to detect for potential deviations in output signals.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A.) **Lazar et al** (**U.S Pub 2003/0231540 A1**) mention an arbitration and control system for row and column addressing with delay and refresh control functionalities implemented.

B.) **Proebsting** (**U.S Patent 5,343,090**) mentions a four-inverter delay circuit; however, as the inventor disclose, that any even number of inverters can be used.

C.) **Maruyama** (**U.S Patent 5,808,956**) mentions the replacing of a "resistor and capacitor" delay circuit by an even number of series-connected CMOS inverter circuits along with fuses.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xavier Wong whose telephone number is (571) 270-1780. The examiner can normally be reached on Monday through Friday 8 am - 5 pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez-Gutierrez can be reached on (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Xavier S. Wong
X.S.W / x.s.w
23rd March 2007